CLAIMS

What is claimed is:

1. A function block entity for use in a process environment having a processor communicatively coupled to control one or more field devices, at least one of which is configurable to be set into a plurality of different configuration states including a normal operating configuration state and at least one non-normal operating configuration state, the function block entity comprising:

a computer readable medium; and

a function block stored on the computer readable medium and adapted to be executed on the processor, the function block including;

an input adapted to receive an input signal from within the process environment indicating a configuration state of at least one of the field devices;

a detection unit coupled to the input that detects when the at least one of the field devices is in a non-normal operating configuration state; and

inhibit logic that automatically produces an inhibit signal when the at least one of the field devices is in a non-normal operating configuration state to inhibit the use of a further signal from the at least one of the field devices.

2. The function block entity of claim 1, wherein the inhibit logic produces a bypass signal for bypassing the use of the further signal from the at least one of the field devices.

3. The function block entity of claim 1, wherein the inhibit logic produces an override signal for overriding a decision made using the further signal from the at least one of the field devices.

4. The function block entity of claim 1, wherein the function block includes a second input for receiving the further signal from the at least one of the field devices.

5. The function block entity of claim 1, wherein the detection unit further detects when the at least one of the field devices enters into the normal operating configuration state from the non-normal operating configuration state based the input signal from the at least one of the field devices and wherein the inhibit logic automatically removes the inhibit signal when the at least one of the field devices is in the normal operating configuration state to allow the use of the further signal from the at least one of the field devices.

6. The function block entity of claim 1, wherein the at least one of the field devices includes a write protection variable the state of which generally controls when the at least one of the field devices can be switched between the normal operating configuration state and a non-normal operating configuration state and wherein the function block further includes a memory that stores a configuration change command adapted to cause the at least one of the field devices to transition between the normal operating configuration state and a non-normal operating configuration state when the write protection variable is in a state that generally prohibits the at least one of the field devices from being switched between the normal operating configuration state and the non-normal operating configuration state and wherein the function block includes a command transmitter that transmits the configuration change command to the at least one of the field devices to cause the at least one of the field devices to undergo a configuration change without resetting the write protection variable.

7. The function block entity of claim 6, wherein the function block includes a log indicating when the function block sent the configuration change command to the at least one of the field devices.

8. The function block entity of claim 7, wherein the function block includes another log indicating when the at least one of the field devices responded to the configuration change command received from the function block.

9. The function block entity of claim 1, wherein the input is adapted to receive an input signal conforming to the HART communication protocol.

10. The function block of claim 1, wherein the inhibit logic is adapted to automatically remove the inhibit signal after a predetermined amount of time.

11. The function block of claim 10, further including notify logic that notifies a user that the inhibit signal has been initiated for a second predetermined amount of time.

12. The function block of claim 10, further including notify logic that notifies a user that the inhibit signal will be removed after the predetermined amount of time prior to the inhibit logic removing the inhibit signal.

13. The function block of claim 1, further including notify logic that notifies a user that the inhibit signal has been initiated for a predetermined amount of time.

14. A process control system for use in a process environment, comprising:

a field device that is configurable to be set into a plurality of different configuration states including a normal operating configuration state and a non-normal operating configuration state, wherein the field device produces a process related signal;

a communication link; and

a controller coupled to the field device through the communication link and adapted to perform a control activity within the process environment using the process related signal, the controller including;

a processor;

a signal receiver unit adapted to be executed on the processor to receive one or more signals from the field device through the communication link;

a detection unit adapted to detect when the field device is in the non-normal operating configuration state based on the one or more of the signals from the field device; and

an inhibit unit that automatically produces an inhibit signal when the field device is in the non-normal operating configuration state to inhibit the use of the process related signal from the field device by the controller in performing the control activity in the process environment.

15. The process control system of claim 14, wherein the detection unit is further adapted to detect when the field device enters into the normal operating configuration state from the non-normal operating configuration state based on the one or more of the signals from the field device and wherein the inhibit unit automatically removes the inhibit signal when the field device is in the normal operating configuration state to enable the use of the process related signal from the field device by the controller.

16. The process control system of claim 14, wherein the field device is a sensor.

17. The process control system of claim 14, wherein the field device is a valve controlled by the controller.

18. The process control system of claim 14, wherein the controller is a safety system controller that uses the process related signal to initiate a shut-down procedure within the process environment.

19. The process control system of claim 14, wherein the field device includes a write protection variable the state of which generally controls when the field device can be switched between the normal operating configuration state and the non-normal operating configuration state and wherein the controller further includes a field device configuration unit that stores a configuration change command adapted to cause the field device to transition between the normal operating configuration state and the non-normal operating configuration state when the write protection variable is in a state that generally prohibits the field device from being switched between the normal operating configuration state and the non-normal operating configuration state.

20. The process control system of claim 19, wherein the controller or the field device includes a log that logs when the controller sends the configuration change command to the field device.

21. The process control system of claim 19, wherein the controller or the field device includes a log that logs when the field device changes between one of the normal operating configuration state and the non-normal operating configuration state and the other of the normal operating configuration state and the non-normal operating configuration state.

22. The process control system of claim 19, wherein the controller further includes logic that sends a signal to the field device configuration unit to cause the field device configuration unit to cause the field device to undergo a configuration state change.

23. The process control system of claim 14, wherein the non-normal operating configuration state of the field device is a fixed current mode.

24. The process control system of claim 23, wherein the field device conforms to the HART protocol.

25. The process control system of claim 14, wherein the inhibit unit is adapted to remove the inhibit signal after a predetermined amount of time.

26. The process control system of claim 25, further including notify logic that notifies a user that the inhibit signal has been initiated for a second predetermined amount of time.

27. The process control system of claim 25, further including notify logic that notifies a user that the inhibit signal will be removed after the predetermined amount of time prior to the inhibit unit removing the inhibit signal.

28. The process control system of claim 14, further including notify logic that notifies a user that the inhibit signal has been initiated for a predetermined amount of time.

29. A control system for use in a process environment having a field device that is configurable to be set into a plurality of different configuration states including a normal operating configuration state and a non-normal operating configuration state and a communication link connected to the field device, the control system comprising:

a memory;

a processor;

a first control routine stored on the memory and adapted to be executed on the processor to use a first signal from the field device to perform a process control function within the process environment; and

a second routine including;

an input adapted to receive a second signal indicative of the configuration state of the field device from the field device through the communication link;

a detection unit adapted to detect when the field device is in the non-normal operating configuration state based on the second signal; and

an inhibit unit that automatically produces an inhibit signal when the field device is in the non-normal operating configuration state and that provides the inhibit signal to the first control routine to inhibit the use of the first signal from the field device by the first control routine.

30. The control system of claim 29, wherein the second routine is stored on the memory and is adapted to be executed on the processor.

31. The control system of claim 29, further including a second memory and a second processor and wherein the second routine is stored on the second memory and is adapted to be executed on the second processor.

32. The control system of claim 29, wherein the detection unit is further adapted to detect when the field device enters into the normal operating configuration state from the non-normal operating configuration state based on the second signal from the field device and wherein the inhibit unit is adapted to automatically remove the inhibit signal from the first control routine when the field device is in the normal operating configuration state to enable the use of the first signal from the field device by the first control routine.

33. The control system of claim 32, wherein the first control routine is a safety system control routine that uses the first signal from the field device to initiate a shut-down procedure within the process environment.

34. The control system of claim 29, wherein the inhibit unit produces a bypass signal as the inhibit signal that causes the first control routine to not use the first signal from the field device in assessing whether to perform the process control function.

35. The control system of claim 29, wherein the inhibit unit produces an override signal as the inhibit signal that causes the first control routine to not perform the process control function when logic within the control routine that uses the first signal to decide whether to perform the process control function indicates that the process control function should be performed.

36. The control system of claim 29, wherein the field device includes a write protection variable the state of which generally controls when the field device can be switched between the normal operating configuration state and the non-normal operating configuration state and wherein the control system further includes a third routine that stores a configuration change command adapted to cause the field device to transition between the normal operating configuration state and the non-normal operating configuration state when the write protection variable is in a state that generally prohibits the field device from being switched between the normal operating configuration state and the non-normal operating configuration state and a signal transmitter that transmits the configuration change command to the field device.

37. The control system of claim 36, wherein the third routine is communicatively connected to the first control routine and is adapted to transmit the configuration change command to the field device in response to a control signal from the first control routine.

38. The control system of claim 36, wherein the third routine includes a log that logs when the third routine sends the configuration change command to the field device.

39. The control system of claim 36, wherein the second routine includes a log that logs when the field device changes between one of the normal operating configuration state and the non-normal operating configuration state and the other of the normal operating configuration state and the non-normal operating configuration state in response to the third routine sending the configuration change command to the field device.

40. The control system of claim 29, wherein the inhibit unit is adapted to automatically remove the inhibit signal after a predetermined amount of time.

41. The control system of claim 40, further including a clock that determines the predetermined amount of time.

42. The control system of claim 40, further including notify logic that notifies a user that the inhibit signal will be removed after the predetermined amount of time prior to the inhibit unit removing the inhibit signal.

43. The control system of claim 42, wherein the inhibit unit enables a user to increase the predetermined amount of time prior to the inhibit unit removing the inhibit signal.

44. The control system of claim 29, further including notify logic that notifies a user that the inhibit signal has been initiated for a predetermined amount of time.

45. A method for use in a controller of a process environment to coordinate logic within the controller with a field device, wherein the field device is connected to the controller via a communication link and is configurable to be set into a plurality of different configuration states including a normal operating configuration state and a non-normal operating configuration state, the method comprising:

receiving a first signal from the field device and using the first signal to perform a control function with respect to the process environment;

receiving a second signal from the field device through the communication link indicative of a configuration state of the field device;

detecting when the field device is in the non-normal operating configuration state based on the second signal from the field device; and

automatically inhibiting the use of the first signal in performing the control function when the field device is in the non-normal operating configuration state.

46. The method of claim 45, wherein detecting further includes detecting when the field device enters into the normal operating configuration state from the non-normal operating configuration state based the second signal from the field device and wherein automatically inhibiting includes automatically allowing the use of the first signal in performing the control function when the field device is in the normal operating configuration state.

47. The method of claim 45, wherein the control function is a safety system control function that uses the first signal from the field device to initiate a shut-down procedure within the process environment.

48. The method of claim 45, wherein the field device includes a write protection variable the state of which generally controls when the field device can be switched between the normal operating configuration state and the non-normal operating configuration state and wherein the method further includes storing a configuration change command adapted to cause the field device to transition between the normal operating configuration state and the non-normal operating configuration state when the write protection variable is in a state that generally prohibits the field device from being switched between the normal operating configuration state and the non-normal operating configuration state and sending the configuration change command to the field device to cause the field device to undergo a configuration change without resetting the write protection variable.

49. The method of claim 48, further including storing a log indicating when the controller sent the configuration change command to the field device.

50. The method of claim 48, further including storing a log indicating when the field device responded to the configuration change command received from the controller.

51. The method of claim 45, wherein automatically inhibiting the use of the first signal in performing the control function includes creating a bypass signal that causes logic used to decide whether to perform the control function to not use the first signal in assessing whether to perform the control function.

52. The method of claim 45, wherein automatically inhibiting the use of the first signal in performing the control function includes creating an inhibit signal that causes logic used to perform the control function to not perform the control function when logic that uses the first signal to decide whether to perform the control function indicates that the control function should be performed.

53. The method of claim 45, wherein automatically inhibiting includes automatically allowing the use of the first signal in performing the control function after a predetermined amount of time.

54. The method of claim 53, wherein automatically inhibiting includes using a clock to determine the predetermined amount of time.

55. The method of claim 53, wherein automatically inhibiting includes notifying a user that the first signal will be allowed to perform the control function after the predetermined amount of time prior to automatically allowing the use of the first signal to perform the control function after the predetermined amount of time.

56. The method of claim 55, wherein automatically inhibiting includes enabling a user to increase the predetermined amount of time prior to automatically allowing the use of the first signal to perform the control function after the predetermined amount of time.

57. The method of claim 45, wherein automatically inhibiting includes notifying a user that the first signal has been prevented from being used to perform the control function after a predetermined amount of time.